

REMARKS

Claims 1-53 are pending in this Application. Claim 1 is amended with this Response. Applicant respectfully thanks the Examiner for indicating the allowable subject matter of claims 14, 15, 30, 31, and 45.

Objections to the claims

Claim 15 is objected to for reciting “0dB,” as opposed to a unit of measure for frequency. In response, Applicant respectfully notes that “0dB” in this claim is not descriptive of frequency. Thus, the unit of measure, “dB,” is not improper.

Rejections under 35 U.S.C. 102(b)

Claims 1-6, 8-12, 16, 25, 26, 28, 29, 32-34, 41, 46, 48, and 53 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 6,232,902 to Wada (Wada hereinafter). Applicant respectfully traverses.

“A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.”
Verdegaal Bros. V. Union Oil Co. of California, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

Applicant’s amended claim 1 recites *inter alia*,

“a self-oscillating *pulse width modulator*.”

Wada does not teach a pulse width modulator. Instead, Wada teaches a “conventional sigma-delta converter,” as shown in Figures 2-4, and stated in the Descriptions of these Figures, which includes a feed forward path and feed-back path having amplitude quantizing means. Applicant respectfully asserts that conventional sigma-delta converters are essentially incompatible with pulse width modulation, as they are well known in the art to modulate input signal based on different modulation principles than those of pulse width modulation. Accordingly, for at least these reasons

set forth above, Wada does not teach every element of Applicant's claim 1, or claims 2-6, 8-12, 16, 25, 26, 28, 29, 32-34, and 41 that depend therefrom.

In addition, Applicant's amended claim 46 recites *inter alia*,

“Method of *pulse width modulating* an analog input signal into a *pulse width modulated* digital signal, whereby said analog input signal is modulated into a *pulse width modulated representation* by means of at least one self-oscillating loop.”

As was mentioned in the discussion of claim 1, Wada does not teach pulse width modulation, as is recited in Applicant's claims 46. Accordingly, for at least the reasons set forth in the discussion of claim 1, Wada does not teach every element of Applicant's claim 46, or claims 48 and 52 that depend therefrom.

Rejections under 35 U.S.C. 103(a)

Claims 7, 13, 39, 42-44, 47, and 52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wada in view of United States Patent No. 7,142,606 to Talwalkar (Talwalkar hereinafter). Applicant respectfully traverses.

For an obviousness rejection to be proper, the Examiner must meet the burden of establishing that all elements of the invention are disclosed in the prior art and that the prior art relied upon, coupled with knowledge generally available in the art at the time of the invention, must contain some suggestion or incentive that would have motivated the skilled artisan to modify a reference or combined references. *In re Fine*, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988); *In Re Wilson*, 165 U.S.P.Q. 494, 496 (C.C.P.A. 1970); *Amgen v. Chugai Pharmaceuticals Co.*, 927 U.S.P.Q.2d, 1016, 1023 (Fed. Cir. 1996).

Claims 7, 13, 39, 42-44, 47, and 52 depend variously from claims 1 and 46. As such, these claims include all of the limitations of claims 1 and 46. Thus, for at least the reasons discussed in the 102 remarks, Wada does not teach every element of Applicant's

claims 7, 13, 39, 42-44, 47, and 52. As Talwalkar does not remedy the deficiencies of Wada, any proposed combination of Wada and Talwalkar also does not teach every element of Applicant's claims 7, 13, 39, 42-44, 47, and 52. Accordingly, Applicant respectfully submits that *prima facie* obviousness does not exist regarding claims 7, 13, 39, 42-44, 47, and 52 with respect to the proposed combination of Wada and Talwalkar. Since the proposed combination of Wada and Talwalkar fails to teach or suggest all of the limitations of claims 7, 13, 39, 42-44, 47, and 52, clearly, one of ordinary skill at the time of Applicant's invention would not have a motivation to modify or combine the references, or a reasonable likelihood of success in forming the claimed invention by modifying or combining. Thus, here again, *prima facie* obviousness does not exist. *Id.*

Claims 17, 19, 20, 21, 23, 27, 35-38, 40, and 49-51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wada in view of United States Publication No. 2001/00433153 to Gordon (Gordon hereinafter). Applicant respectfully traverses.

For an obviousness rejection to be proper, the Examiner must meet the burden of establishing that all elements of the invention are disclosed in the prior art and that the prior art relied upon, coupled with knowledge generally available in the art at the time of the invention, must contain some suggestion or incentive that would have motivated the skilled artisan to modify a reference or combined references. *In re Fine*, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988); *In Re Wilson*, 165 U.S.P.Q. 494, 496 (C.C.P.A. 1970); *Amgen v. Chugai Pharmaceuticals Co.*, 927 U.S.P.Q.2d, 1016, 1023 (Fed. Cir. 1996).

Claims 17, 19, 20, 21, 23, 27, 35-38, 40, and 49-51 depend variously from claims 1 and 46. As such, these claims include all of the limitations of claims 1 and 46. Thus, for at least the reasons discussed in the 102 remarks, Wada does not teach every element of Applicant's claims 17, 19, 20, 21, 23, 27, 35-38, 40, and 49-51. As Gordon does not remedy the deficiencies of Wada, any proposed combination of Wada and Gordon also does not teach every element of Applicant's claims 17, 19, 20, 21, 23, 27, 35-38, 40, and 49-51. Accordingly, Applicant respectfully submits that *prima facie* obviousness does not exist regarding claims 17, 19, 20, 21, 23, 27, 35-38, 40, and 49-51 with respect to the

proposed combination of Wada and Gordon. Since the proposed combination of Wada and Gordon fails to teach or suggest all of the limitations of claims 17, 19, 20, 21, 23, 27, 35-38, 40, and 49-51, clearly, one of ordinary skill at the time of Applicant's invention would not have a motivation to modify or combine the references, or a reasonable likelihood of success in forming the claimed invention by modifying or combining. Thus, here again, *prima facie* obviousness does not exist. *Id.*

Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wada in view of United States Patent No. 5,729,230 to Jensen (Jensen hereinafter). Applicant respectfully traverses.

For an obviousness rejection to be proper, the Examiner must meet the burden of establishing that all elements of the invention are disclosed in the prior art and that the prior art relied upon, coupled with knowledge generally available in the art at the time of the invention, must contain some suggestion or incentive that would have motivated the skilled artisan to modify a reference or combined references. *In re Fine*, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988); *In Re Wilson*, 165 U.S.P.Q. 494, 496 (C.C.P.A. 1970); *Amgen v. Chugai Pharmaceuticals Co.*, 927 U.S.P.Q.2d, 1016, 1023 (Fed. Cir. 1996).

Claim 18 depends from claim 1. As such, claim 18 includes all of the limitations of claim 1. Thus, for at least the reasons discussed in the 102 remarks, Wada does not teach every element of Applicant's claim 18. As Jensen does not remedy the deficiencies of Wada, any proposed combination of Wada and Jensen also does not teach every element of Applicant's claim 18. Accordingly, Applicant respectfully submits that *prima facie* obviousness does not exist regarding claim 18 with respect to the proposed combination of Wada and Jensen. Since the proposed combination of Wada and Jensen fails to teach or suggest all of the limitations of claim 18, clearly, one of ordinary skill at the time of Applicant's invention would not have a motivation to modify or combine the references, or a reasonable likelihood of success in forming the claimed invention by modifying or combining. Thus, here again, *prima facie* obviousness does not exist. *Id.*

Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wada in view of United States Patent No. 6,950,488 to Chung (Chung hereinafter). Applicant respectfully traverses.

For an obviousness rejection to be proper, the Examiner must meet the burden of establishing that all elements of the invention are disclosed in the prior art and that the prior art relied upon, coupled with knowledge generally available in the art at the time of the invention, must contain some suggestion or incentive that would have motivated the skilled artisan to modify a reference or combined references. *In re Fine*, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988); *In Re Wilson*, 165 U.S.P.Q. 494, 496 (C.C.P.A. 1970); *Amgen v. Chugai Pharmaceuticals Co.*, 927 U.S.P.Q.2d, 1016, 1023 (Fed. Cir. 1996).

Claim 22 depends from claim. As such, claim 22 includes all of the limitations of claim 1. Thus, for at least the reasons discussed in the 102 remarks, Wada does not teach every element of Applicant's claim 22. As Chung does not remedy the deficiencies of Wada, any proposed combination of Wada and Chung also does not teach every element of Applicant's claim 22. Accordingly, Applicant respectfully submits that *prima facie* obviousness does not exist regarding claim 22 with respect to the proposed combination of Wada and Chung. Since the proposed combination of Wada and Chung fails to teach or suggest all of the limitations of claim 22, clearly, one of ordinary skill at the time of Applicant's invention would not have a motivation to modify or combine the references, or a reasonable likelihood of success in forming the claimed invention by modifying or combining. Thus, here again, *prima facie* obviousness does not exist. *Id.*

In response to all of the rejections above, Applicant further and respectfully notes that the delta-sigma converter taught in Wada is not oscillating in a feed-back path, meaning that absence of a clock signal (shown in each Figure of Wada) would result in no modulation. Thus, if the event in the feed-back path of Wada were to be interpreted as an oscillation, this interruption would merely to be regarded as a limit cycle type oscillation, and the oscillation would stop if no clock in the flip-flop were to be present.

Thus, if a person of ordinary skill in the art were to look from the sigma-delta design of Wada into a PWM-modulator based design, he would end up with a solution that either required a clock (modulating pulse, i.e. a conventional PWM) or a sigma-delta converter with no clock and consequently no modulation in the sense that the output would be constant.

Conclusion

Applicant respectfully submits that the prior art rejections are herein overcome. Applicant respectfully requests withdrawal of all rejections and objections and issuance of a Notice of Allowance.

Applicant hereby petitions under 37 C.F.R. §§1.136, 1.137 for any extension of time necessary for entry and consideration of the present Response.

If there are any charges with respect to this amendment, or otherwise, please charge them to Deposit Account No. 06-1130 maintained by Applicant's attorneys.

The Examiner is invited to contact Applicant's attorneys at the below telephone number regarding this Response or otherwise concerning the present application.

Respectfully submitted,

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